openreach

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## Suppliers' Information Note

*For The Openreach Network*

# OPENREACH CCTV ACCESS (compressed)

## Service & Interface Description

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# CONTENTS


1. INTRODUCTION ..... 3

2. SERVICE OUTLINE ..... 3

2.1 GENERAL ..... 3
2.2 SERVICE AVAILABILITY ..... 4

3. TECHNICAL SPECIFICATION ..... 4

3.1 OVERVIEW ..... 4
3.2 STANDARDS COMPLIANCE ..... 5
3.3 DIGITAL INTERFACE PRESENTATION ..... 5
3.4 VIDEO INTERFACE PRESENTATION ..... 5
3.5 AUDIO INTERFACE PRESENTATION ..... 5
3.6 DATA CHANNEL INTERFACE SPECIFICATION ..... 6
3.7 CONTACT CLOSURE (CCL) INTERFACE SPECIFICATION ..... 6
3.8 LINE PROTECTION UNIT INTERFACE SPECIFICATION ..... 7
3.9 HEAT MANAGEMENT ..... 7

4. POWER SUPPLY ..... 8

*4.1.1 AC Power supply ..... 8*
*4.1.2 DC Power supply ..... 8*

5. FURTHER INFORMATION ..... 8

6. REFERENCES ..... 8

7. ABBREVIATIONS ..... 8

8. HISTORY ..... 9

## 1. Introduction

This Suppliers Information Note (SIN) describes the Openreach CCTV Access compressed (digital) service and provides technical information for terminal equipment manufacturers, suppliers and developers.

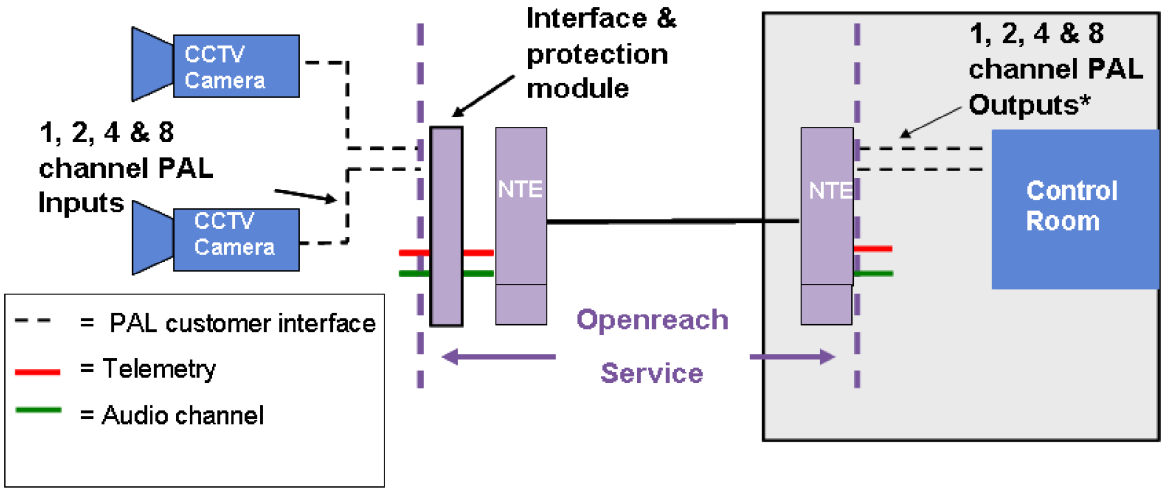
## 2. Service Outline

### 2.1 General

The Openreach CCTV Access compressed service provides unidirectional video connectivity between a remote CCTV Camera location and the CCTV Control room where the service terminates.

The 'A-end' of the Openreach CCTV Access circuit will be at the CCTV control room and the 'B-end' of the circuit will be at the remote CCTV camera location for the majority of circuits, however there maybe instances where this could also be a CCTV control room. The Communications Provider will connect their CCTV equipment to the NTE at each end of the service.

The CCTV Access compressed service will transport PAL video inputs from the CCTV camera end in a compressed signal format suitable for transmission over the Openreach optical fibre network. At the control room end the equipment has the ability to decode the compressed signal and present as PAL or to leave compressed and present it as a digital signal.




The CCTV Access compressed service typically has a 200 millisecond delay on the video and audio signals.

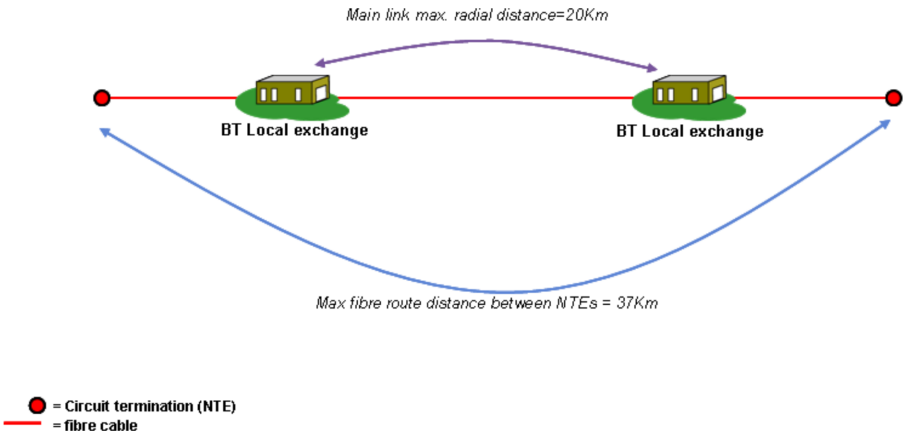
The CCTV Access compressed service has the option of a 1, 2, 4 or 8 video channels. Audio and telemetry data channels are also provided.

## 2.2 Service Availability

The CCTV Access compressed service is available on a point to point basis within the UK and is limited to a maximum fibre route length of 37km. Route distance checks are carried out as part of the initial survey work, when an order has been placed.

A main link is limited to a maximum of 20km radial distance measured between the BT Serving exchanges (intermediate and host exchanges) at each end of a CCTV Access service.

Orders that exceed these limitations will be rejected.


Main link max. radial distance=20Km
BT Local exchange
BT Local exchange
Max fibre route distance between NTEs = 37Km
= Circuit termination (NTE)
= fibre cable

This is an end user site to end user site service only. All services are subject to survey. Connection from an end user site to a CP Point of Presence located in a BT Locate, CoLocate or Netlocate facility is not currently available.

This service cannot be used to provide connection between Communications Provider sites.

Please refer to the CCTV Access product handbook for details of the circuit options available (http://www.openreach.co.uk/orpg/products/cctvaccess/cctvaccess.doc).

# 3. Technical specification

## 3.1 Overview

This product allows compliant CCTV circuits to be transported between locations in the UK using BT's telecommunications optical fibre infrastructure. This is achieved by utilising specific NTEs which encode/decode the customer's signals into MPEG-4 format and perform electrical to optical, and optical to electrical signal conversion at each end of an optical fibre.

The Control room end (A-end) of the 1,2 and 4 channel service will use compact type NTEs. The 8 channel service will use a 1U high NTE. Where an MPEG-4 digital output is required instead of PAL (control room end only) an Ethernet switch NTE will be used instead of the normal NTE to provide logical connection to the video, audio and data channels.

The CCTV Camera end (B-end) of the of the 1,2 and 4 channel service will use compact type NTEs. The 8 channel service will use a 1U high NTE. Line protection unit(s) will be fitted to the NTE at the B-end of the service to provide primary line protection and hum suppression. The customer interface will be presented as screw terminals and BNC connections on the line protection unit(s).

### 3.2 Standards compliance

Customer video signals presented to the NTE for transportation must comply with the PAL (Phase Alternate Line) video standard. Likewise, the signal handed back to the customer after transportation will comply with these requirements unless the digital interface option is selected.

### 3.3 Digital interface presentation

Optionally available at the Control room end (A-end) of the service only, an Ethernet switch NTE is used to present the MPEG-4 signal on an RJ-45 (female) interface.

This interface will comply with 10/100Base-Tx specification (IEEE 802.3).

An optical interface is not currently available.

### 3.4 Video interface presentation

Customer connection to each PAL video channel of the CCTV Access circuit is made via a 75Ω, female BNC connector on the NTE or line protection unit. Nominal signal input and output level is 1V pk-pk.

The NTE are intended for use with unbalanced, 75Ω video circuits.

### 3.5 Audio interface presentation

Each CCTV Access circuit is provided with bidirectional audio channels conforming to ITU G.711. The actual number of channels will depend on the service selected. The audio channels operate independently to the video.

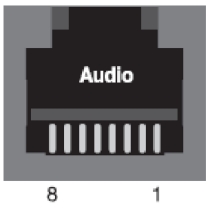
The number of audio channels available is dependent on the CCTV Access NTE used:

| | Number of video channels | Number of audio channels |
|---|---|---|
| Digital (compressed) service | 1 | 2 (unbalanced) |
| | 2 | 2 (unbalanced) |
| | 4 | 4 (unbalanced) |
| | 8 | 2 (unbalanced) |

The audio interface supports unbalanced wiring only. The audio impedance is constant and cannot be adjusted. The audio input impedance is >10kΩ and the output impedance is <50Ω.

At the A-end (CCTV control room) the connector type is RJ-45 female. At the B-end (CCTV camera) screw terminal connectors are presented (see section 3.8).

The table below shows the RJ-45 pin-out details:




| Pin | Unbalanced audio |
|---|---|
| 1 | Ground |
| 2 | |
| 3 | Ground |
| 4 | Audio 1 out |
| 5 | Audio 2 out |
| 6 | |
| 7 | Audio 1 in |
| 8 | Audio 2 in |

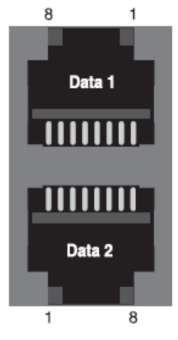
## 3.6 Data channel interface specification

Each CCTV Access circuit is provided with either two or three data channels. The actual number of channels will depend on the service selected. The Data channels can be set (by Openreach) to either RS232, RS422, RS485 2-wire or RS485 4-wire.

The number of data channels available is dependent on the CCTV Access NTE used:

| | Number of video channels | Number of data channels |
|---|---|---|
| Digital (compressed) service | 1 | 2 (selectable) |
| | 2 | 2 (selectable) |
| | 4 | 2 (selectable) |
| | 8 | 3 (selectable) |

At the A-end (CCTV control room) the connector type is RJ-45 female. At the B-end (CCTV camera) screw terminal connectors are presented (see section 3.8).




| | Data connector pin-out | | | |
|---|---|---|---|---|
| Pin | RS232 | RS422 | RS485 (2-wire) | RS485 (4-wire) |
| 1 | | Out (-) | In/out (-) | Out (-) |
| 2 | Out | Out (+) | In/out (+) | Out (+) |
| 3 | | In (+) | In/out (+) | In (+) |
| 4 | | | | |
| 5 | Ground | Ground | Ground | Ground |
| 6 | In | In (-) | In/out (-) | In (-) |
| 7 | | | | |
| 8 | Ground | Ground | Ground | Ground |

## 3.7 Contact closure (CCL) interface specification

Contact Closure (CCL) circuit is not currently available for the CCTV Access compressed service.

## 3.8 Line Protection Unit interface specification

At the B end (i.e. remote camera end) of the CCTV Access circuit, line protection units are fitted to the NTE.

Customer connection to each PAL video channel of the CCTV Access circuit is made via a 75Ω, female BNC connector on the line protection unit. Nominal signal input and output level is 1V pk-pk.

Customer connection to the Audio, Data and Contact Closure circuits is via screw terminals presented on the line protection unit.

| Screw Terminal Connector (customer interface) | | | | | |
|---|---|---|---|---|---|
| **Connector** | **Pin** | **Signal** | | | |
| CCL | 1 | Not used | | | |
| | 2 | Not used | | | |
| | 3 | Not used | | | |
| | 4 | Not used | | | |
| DATA 1 & 2 | | **RS232** | **RS422** | **RS485 (2W)** | **RS485 (4W)** |
| | 1 | | In (+) | In/Out (+) | In (+) |
| | 2 | In | In (-) | In/Out (-) | In (-) |
| | 3 | Ground | Ground | Ground | Ground |
| | 4 | Out | Out (+) | | Out (+) |
| | 5 | | Out (-) | | Out (-) |
| DATA 3 (RS232 only) | 1 | In | | | |
| | 2 | Ground | | | |
| | 3 | Out | | | |
| AUDIO 1 | 1 | Out (+) | | | |
| | 2 | Out (-) | | | |
| | 3 | Ground | | | |
| | 4 | In (+) | | | |
| | 5 | In (-) | | | |
| AUDIO 2 | 1 | Out (+) | | | |
| | 2 | Out (-) | | | |
| | 3 | Ground | | | |
| | 4 | In (+) | | | |
| | 5 | In (-) | | | |

## 3.9 Heat Management

The permitted NTE operating temperature range is -10 to +60°C. The permitted humidity can be in the range 0 to 90% in non-condensing conditions. The permitted storage temperature range is –30 to +70°C.

## 4. Power supply

### 4.1.1 AC Power supply

Each NTE will require one 240 Volt AC power supply using 13 Amp switched sockets which must be provided within 1.5 metres of the NTE for each NTE provided.

In addition to the NTE power requirements a 50Hz AC mains supply 13amp socket should also be provided, in close proximity to the NTEs, to power Openreach test equipment during both initial commissioning and subsequent maintenance support activities.

### 4.1.2 DC Power supply

A DC power supply option is not currently available for CCTV Access.

## 5. Further information

For enquiries concerning connection availability between particular sites and for further "sales and marketing" information about this service please contact your BT Account Manager or Openreach Customer Business Manager.

See http://www.openreach.co.uk.

If you have enquiries relating to this document then please email: orsinsfa@openreach.co.uk

For information on where to obtain these referenced documents, please see the document sources list at https://www.openreach.co.uk/orpg/home/helpandsupport/sins/sins.do

## 6. References

| | | |
|---|---|---|
| | IEEE 802.3 | LAN/MAN CSMA/CD Access Method |
| | IEEE 802.1 | LAN/MAN Bridging & Management |

## 7. Abbreviations

| | |
|---|---|
| AC | Alternating Current |
| BNC | Bayonet Neill-Concelman |
| DC | Direct Current |
| CCTV | Closed Circuit Television |
| FSK | Frequency Shift Keying |
| NTE | Network Terminating Equipment |
| SIN | Suppliers' Information Note (BT Publication) |
| PAL | Phase Alternate Line |

## 8. History

| Issue | Date | Changes |
|---|---|---|
| Issue 1.0 | March 2008 | First published. |
| Issue 1.1 | 1 April 2008 | The reference to the future launch date and the pre-launch caveats in the Service Outline were removed on the day of the product launch. |
| Issue 1.2 | December 2014 | Change SINet site references from http://www.sinet.bt.com to http://www.btplc.com/sinet/ |
| Issue 1.3 | September 2020 | Changes to branding, from BT to Openreach including changes to reflect new Openreach SIN site and Openreach SIN email address |
| Issue 1.3 | September 2021 | Annual Review – no changes required – issue remains unchanged. |
| Issue 1.3 | October 2022 | Annual Review – branding and font changes only – issue remains unchanged |
| Issue 1.3 | October 2023 | Annual Review – branding and font changes only – issue remains unchanged |
| Issue 1.3 | October 2025 | Annual Review – no changes required – issue remains unchanged. |

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